CONFIDENTIAL

TIRC Grant #68

Progress Report #1

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"Investigation into the Natural History of Carcinoma of the Lung with Particular Reference to the Radiographic Appearance"

This report contains information gathered since the start of the investigation in 1953 and consequently covers more cases than those analyzed in the period of support by the Tobacco Research grant.

A. MATERIAL:

1. A total of 446 cases of cancer of the lung diagnosed during the past 30 years has been gathered and partially analyzed as follows with the year indicating the time of diagnosis.

YEAR	ANALYZED	STILL TO BE ANALYZED	TOTAL
1926	1	2	3
1927	0	2	2
1928	1	4	5
1929	1	2	3
1930	2	1	3
1931	2	3	5
1932	3	3	6
1933	0	6	6
1934	1	5	6
1935	4	5	9
1936	4	3	7
1937	2	7	9
1938	3	5	8
1939	3	8	11
1940	2	8	10
1941	4	5	9
1942	9	7	16
1943	2	5	7
1944	4	0	4
1945	4	4	8
1946	7	3	10
1947	10	5	15
1948	14	11	25
1949	9	7	16
1950	17	9	26
1951	26	15	41
1952	28	25	53
1953	24	8	32
1954	1	38	39
1955	14	23	37
TOTALS	203	243	446

2. Not included in this progress report but intended as part of the final summation of the project are:

a. Tabulation of specific symptoms.
b. Diagnostic and operative procedures.
c. Specific pathological cell type.
d. Tobacco habits.

B. METHODS:

As of January 1, 1956, 450 letters were written to patients, their families, physicians and to hospitals in an attempt to track down previous x-rays taken prior to the onset of symptoms or prior to diagnosis. Of these, 185 were written in 1955. Other specific information was elicited as indicated. Three hundred answers have been received and the information tabulated.

These letters and a review of records from this and other hospitals lead to the accumulation and study of approximately 600 sets of x-rays. One hundred forty of these were from sources other than our own.

All of the information relative to an individual case has been recorded on a master chart from which statistical information is readily available.

C. STATISTICS:

Based on 203 currently completed cases. (243 cases are still to be processed plus cases diagnosed in coming months.)

1. Sex: 180 males; 23 females.

2. Age:

Average male:	58.2
Average female:	56.7
Average total:	58.2

3. Occupation: (known in 162 cases with 167 categories)

Occupation	No. of cases	Per Cent
White Collar	51	30
Housewife	18	11
Miscell. (1 each)	14	8.4
Dust (moulders, etc.)	12	7.2
Machinists	10	6.0
Carpenters	9	5.4
Painters	8	4.8
Tailors	7	4.2
Truck Drivers	7	4.2
Farmers	6	3.6
Janitors	5	3.0
Gardeners	4	2.4
Railroad workers	4	2.4
Garage mechanics	3	1.8
Laborers	3	1.8

Occupation	No. of cases	Per Cent
Bakers	2	1.2
Plumbers	2	1.2
Teamsters	2	1.2

4. Earliest x-rays found: (whether negative or positive for disease)

Average interval between date of film and diagnosis: 24.3 months
Extremes: from zero up to 264 months.

5. Earliest x-ray evidence of lung cancer:

a. The average interval between the earliest evidence of cancer and the clinical diagnosis was ---------- 4.88 mos.

b. Excluding 58 cases (28%) where no early x-rays were found and in which the x-ray evidence of disease and the diagnosis were simultaneous, the average interval between the earliest x-ray evidence of cancer and the diagnosis ---------- 6.9 mos.

c. The average interval between the earliest x-ray evidence of cancer and a definite pathological diagnosis was ---- 5.37 mos.

The longest such interval was ---------- 36 mos.

Breakdown of such interval:

	No. Cases	Per Cent
Less than 6 months ----------	87	43
6 to 11 months inc.----------	24	12
12 to 23 months incl.----------	22	11
Over 24 months----------	9	4.4
Zero (see C-5-b above)----------	58	28

6. Relationship of symptoms to x-ray change and to diagnosis:

a. X-ray evidence of cancer preceded clinical symptoms in 18 cases (8.8%)

Average interval of such preceding change-------- 14 months
Longest such interval---------- 34 months
Shortest such interval---------- 1 month

b. In 16 cases (7.9%) there were no symptoms attributable to cancer of the lung prior to the diagnosis.

c. Duration of symptoms prior to diagnosis (including b above):

Average---------- 7 months
Longest such interval---------- 5 years
Shortest such interval---------- 0

Breakdown of interval:

	No. cases	Per Cent
No interval----------	16	7.9
Less than 6 months----------	100	49.4
6 to 11 months----------	46	22.5

	No. cases	Per Cent
12 to 23 months----------	26	12.8
Over 24 months----------	15	7.4

7. The interpretations of radiographs showing the earliest changes compatible with the diagnosis of cancer of the lung have been tabulated in 13 categories as follows:

See Table 1.

D. RESULTS:

No results or conclusions have been, or are intended to be drawn from this preliminary progress report since any such conclusions would be most pertinent after summation of the whole.

TABLE

CATEGORIES OF EARLIEST RADIOGRAPHIC CHANGES COMPATIBLE WITH DIAGNOSIS OF CANCER OF LUNG

RADIOGRAPHIC FINDING	TOTAL		FOUND ALONE		WITH 1 OTHER		WITH 2 OTHERS	
	No.	%	No.	%	No.	%	No.	%
Obstructive pneumonitis **	76	37.3	35	17.2	35	17.2	6	3.0
Hilar lymph nodes	50	24.6	10	4.9	37	18.2	3	1.5
Parenchymal mass	42	20.7						
1 cm. or less in size	10	4.9	10	4.9	0		0	
Over 1 cm. in size	32	15.8	20	10.1	12	5.9	0	
Hilar mass	30	14.8	14	6.9	13	6.4	3	1.5
Atelectasis	22	10.8	9	4.4	13	6.4	0	
Pleural effusion	19	9.4	0		15	7.4	4	2.0
Parenchymal fibrous infiltrate	13	6.4	10	4.9	3	1.5	0	
Mediastinal nodes	12	5.9	4	2.0	6	3.0	2	1.1
Parenchymal mass with cavitation	6	3.0	5	2.5	1	0.5	0	
Obstructive emphysema	5	2.5	1	0.5	4	2.0	0	
Obstructive pneumonitis with breakdown (cavitation)	4	2.0	2	1.1	2	1.1	0	
Perihilar infiltration	2	1.1	1	0.5	1	0.5	0	
Diffuse parenchymal tumor	1	0.5	1	0.5	0		0	

* a term indicating a combination of atelectasis and infection in a segment of parenchyma.